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EXAMINER

BAKER, CHARLOTTE M

ART UNIT PAPER NUMBER

2626

DATE MAILED: 08/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,862

Applicant(s)

FENG ET AL.

Examiner

Charlotte M Baker

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on March 14, 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2 and 7</u> . | 6) <input type="checkbox"/> Other: ____. |

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on (03/14/01) and the supplemental information disclosure statement filed on (09/08/03) are being considered by the examiner.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 2 (items 34 and 36) and Figure 3 (item 38). Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 2626

4. Claims 1, 10, 12, 13-14, 17-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding Claim 1 f): The specification does not teach how the “converting to a color space of an output device” is performed. The examiner relies on pages 3 and 4 of the specification and this teaching is not disclosed.

Regarding Claim 10: The specification does not teach how the “color space of the output device” is converted to “RGB space”. In addition, on page 3 of the specification, it is stated that the output device space “for printers is typically either cyan-magenta-yellow-black (CMYK), or cyan-magenta-yellow (CMY)”. The specification does not list RGB space as a color space of the output device where the claim subject matter is discussed.

Regarding Claims 12 a)-f): The specification does not teach a computer-readable medium, or software code that when executed produces results a)-f). The examiner relies on the specification on pages 3-5 and this teaching is not disclosed.

Regarding Claims 13-14: The specification does not teach a computer-readable medium. The examiner relies on the specification on pages 3-6 and this teaching is not disclosed.

Regarding Claim 17: The specification does not discuss a fax machine as a possible color reproduction device. The examiner relies on page 3 of the specification and this teaching is not disclosed.

Regarding Claim 18: The specification does not teach the background suppression module including a lookup table to map input data pixels to luminance-chrominance color space, nor

Art Unit: 2626

does it teach how the mapping takes place. . The examiner relies on pages 3-4 of the specification and this teaching is not disclosed.

Regarding Claim 19: On page 4 (lines 7-8) of the specification, the information is contradictory to the claim. The claim states “the lookup tables are only used on pixels with values other than the value corresponding to white”, but the specification states “the lightness mapping function maps the background lightness to the value corresponding to white”.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claim 1 e): The term “second threshold” does not particularly point out whether it is less than or greater than the first threshold. In addition, it is not clear what the threshold actually is.

Regarding Claim 11: The term “second thresholds” does not particularly point out whether it is less than or greater than the first threshold. In addition, it is not clear what the threshold actually is.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2626

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-3, 5-7, 15,16, 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ball (6,323,957).

Regarding Claim 1:

a) As best understood from the language of the claim, Ball discloses a MIC module used for background suppression that uses background information to determine lightness level (column 5, lines 21-25), which reads on “estimating a background level in an original image”.

b) As best understood from the language of the claim, Ball discloses referencing pixels to a pure white (column 5, lines 36-43), which reads on “converting pixels in the original image to a luminance-chrominance color space, wherein pixels having lightness levels substantially equal to the background lightness level are mapped as background pixels such that their lightness values are set substantially to a value corresponding to white”.

c) As best understood from the language of the claim, Ball discloses determination of background color (chroma) (column 5, lines 1-4), which reads on “comparing chroma values for the background pixels to at least one threshold”.

d) As best understood from the language of the claim, Ball discloses the use of background information and control parameters for changing lightness levels (column 5, lines 21-25), which

Art Unit: 2626

reads on, “adjusting lightness levels for any background pixels having chroma values above a first threshold to a new lightness level, producing lightness adjusted pixels”.

e) As best understood from the language of the claim, Ball discloses adjustment of background pixels (column 5, lines 15-25), which reads on “removing chroma from any background pixels having chroma values below a second threshold, producing color adjusted pixels”.

f) As best understood from the language of the claim, Ball further discloses color space conversion (column 4, lines 42-45) and rendering a pixel stream suitable for the output device (Figure 4, “PIXELS” entering item 14), which reads on “converting to a color space of an output device, wherein conversion is performed on all pixels including any lightness adjusted pixels and color-adjusted pixels

Regarding Claim 2: Ball satisfies all elements of Claim 1. As best understood from the language of the claim, Ball further discloses determination of a background color using a histogram (column 5, lines 1-11), which reads on “wherein estimating a background lightness level further comprises building histograms of each line of the original image and then determining a high peak value in the histograms”.

Regarding Claim 3: Ball satisfies all the elements of Claim 2. As best understood from the language of the claim, Ball further discloses the possibility of varying shades of white and their relationship to the paper in use (column 5, lines 1-25), which reads on “wherein estimating a

Art Unit: 2626

background lightness level further comprises building histograms of each line of the original image and then determining a high peak value in the histograms”.

Regarding Claim 5: Ball satisfies all elements of Claim 1. As best understood from the language of the claim, Ball discloses a color value of 255 equating to pure-white (column 5, lines 36-39), which reads on “wherein the value corresponding to white is 255”.

Regarding Claim 6: Ball satisfies all elements of Claim 5. As best understood from the language of the claim, Ball further discloses a range of lightness levels as 0 to 255 (column 11, lines 59-65), which reads on “wherein the new lightness level is substantially equal to 254”.

Regarding Claim 7: Ball satisfies all elements of Claim 1. As best understood from the language of the claim, Ball further discloses colored-background removal as a part of luminance enhancement (column 11 lines 19-29), which reads on “wherein color is removed from a pixel by setting the chrominance components of that pixel value in the luminance-chrominance color space substantially equal to zero”.

Regarding Claim 15:

a) Ball discloses scanning a color image (column 5, lines 53-60), which reads on “a scanning module operable to scan a color original and produce input data representative of the color original”.

b) Ball discloses a MIC module used for background suppression that uses background information to determine lightness level (column 5, lines 21-25), which reads on “a background suppression module operable to determine a background lightness level”. Ball further discloses referencing pixels to a pure white (column 5, lines 36-43), which reads on “map pixels of input

Art Unit: 2626

data to luminance-chrominance color space such that pixels having a lightness level substantially equal to the background lightness level are mapped as background pixels having a lightness value corresponding to white”.

c) Ball discloses determination of background color (chroma) (column 5, lines 1-4), which reads on “determine if chroma values for the background pixels are above a threshold”. Ball further discloses adjustment of background pixels (column 5, lines 15-25), which reads on “adjust any background pixels having a chroma value above the threshold to a lightness level different from the lightness corresponding to white and remove chroma from any background pixels having a chroma value below the threshold”.

d) Ball further discloses color space conversion (column 4, lines 42-45) and rendering a pixel stream suitable for the output device (Figure 4, “PIXELS” entering item 14), which reads on “an output conversion module, operable to convert all pixels in the luminance-chrominance color space to an output space”.

Regarding Claim 16: Ball satisfies all elements of Claim 15. Ball further discloses the use of a color digital copier as a reproduction device (column 4, lines 28-32), which reads on “wherein the device is a copier”.

Regarding Claim 18: Ball satisfies all elements of Claim 15. As best understood from the language of the claim, Ball further discloses look-up tables associating color space (column 11,

Art Unit: 2626

lines 59-65 and column 12, lines 1-5), which reads on “wherein the background suppression module includes lookup tables operable to map the pixels of input data to luminance-chrominance color space”.

Regarding Claim 19: Ball satisfies all elements of Claim 18. As best understood from the language of the claim, Ball further discloses control parameters to control background and pixel values other than white, and look-up tables used in conjunction (column 12, lines 6-20), which reads on “wherein the lookup tables are only used on pixels with values other than the value corresponding to white”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Ball to use look-up tables for pixel values other than white to speed up the reproduction process and produce a better quality print.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ball in view of Fan et al. (6,757,081).

Regarding Claim 4: Ball satisfies all elements of Claim 1. Ball fails to specifically address a threshold that is below 30. Fan et al. disclose a threshold value that is below 30 (column 10, lines 40-62), which reads on “wherein the first and second thresholds are substantially equal to 20 for text mode, and 10 for all other modes”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Fan et al. to choose threshold levels to determine whether the mode should be text or not to yield a better quality print.

Art Unit: 2626

10. Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball in view of Lin et al. (6,204,939).

Regarding Claim 8: Ball satisfies all elements of Claim 1. Ball fails to specifically address an output device with a CMYK color space. Lin et al. disclose CMYK as the output device color space (column 5, lines 62-67 and column 6, lines 1-9), which reads on “wherein the color space of the output device is CMYK space”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to use CMYK space for the output device to offer output device compatibility for a better quality print and to improve efficiency.

Regarding Claim 9: Ball satisfies all elements of Claim 1. Ball fails to specifically address an output device with a CMY color space. Lin et al. disclose CMY as the output device color space (column 9, lines 57-65), which reads on “wherein the color space of the output device is CMY space”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to use CMY space for the output device to offer output device compatibility for a better quality print and to improve efficiency.

Regarding Claim 10: Ball satisfies all elements of Claim 1. Ball fails to specifically address an output device with a RGB color space. Lin et al. disclose RGB as the output device color space (column 9, lines 46-56), which reads on “wherein the color space of the output device is RGB space”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to use RGB space for the output device to offer output device compatibility for a better quality print and to improve efficiency.

Regarding Claim 11: Ball satisfies all elements of Claim 1. Ball fails to specifically address first and second thresholds that are equal. Lin et al. disclose threshold comparison and the case where chroma values are equal (column 15, lines 66-67 and column 16, lines 1-5), which reads on “wherein the first and second thresholds are equal” because applicant discloses one threshold is used when two thresholds are equal. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to equate the first and second thresholds to essentially create one threshold to improve efficiency.

Regarding Claim 12: With respect to claim 12, arguments analogous to those presented for Claim 1 are applicable. Ball fails to specifically address a computer-readable medium. Lin et al. further disclose a controlling device (column 6, lines 21-41), which reads on “a computer-readable medium including software code”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to incorporate a controlling device to improve the speed and efficiency of the print process.

Regarding Claim 13: Ball further in view of Lin et al. satisfy all elements of Claim 12. Ball fails to specifically address a downloadable file for a reproduction device. Lin et al. disclose a storage medium (column 6, lines 28-41), which reads on “wherein the computer-readable medium is a file downloadable into a color reproduction device”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to improve the speed and efficiency of the print process.

Regarding Claim 14: Ball in view of Lin et al. satisfy all elements of Claim 12. Ball fails to specifically address firmware for a color reproduction device. Lin et al. disclose a storage medium (column 6, lines 28-41), which reads on “wherein the computer-readable medium is

Art Unit: 2626

firmware in a processor for a color reproduction device”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Lin et al. to improve the speed and efficiency of the print process.

11. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ball in view of Yabe (6,359,703).

Regarding Claim 17: Ball satisfies all elements of Claim 15. Ball fails to specifically address a fax machine used as a color reproduction device. Yabe discloses the use of a fax machine as a color reproduction device (column 9, lines 35-39), which reads on “wherein the device is a fax machine”. It would have been obvious for a person of ordinary skill in the art at the time of the invention to use the suggestion of Yabe to use a fax machine to ensure a quality document transmission.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charlotte M Baker whose telephone number is (703) 306-3456. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Kimberly A Williams can be reached on (703) 305-4863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2626

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmb *CWB*

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